

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

An Overview of Hydro-Meteorological Data Flow and Processes

*By
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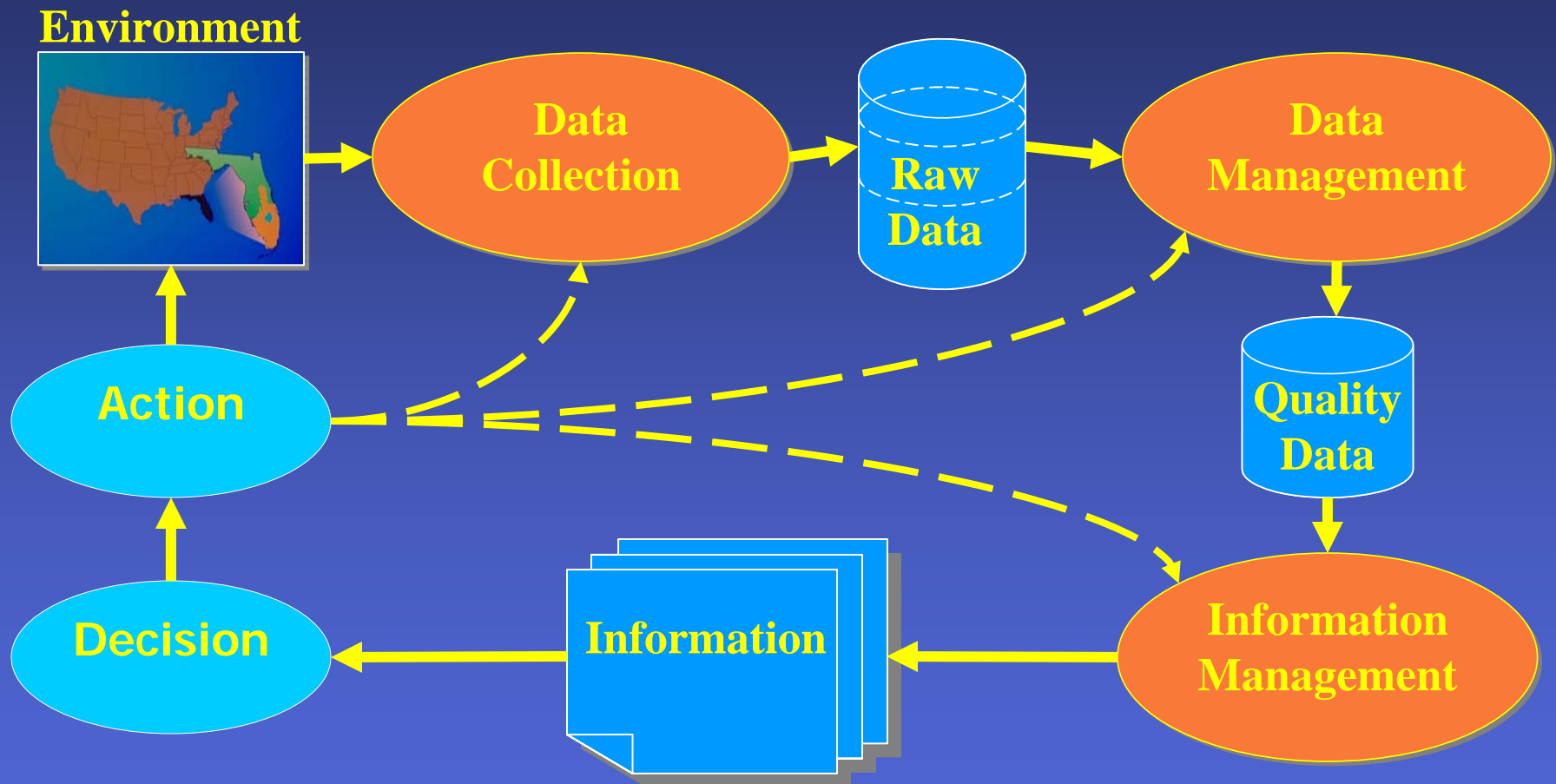
***Hydrology and Hydraulics Division
Environmental Monitoring & Assessment Department***

***Hydro-Data Expo
March 16, 2004***

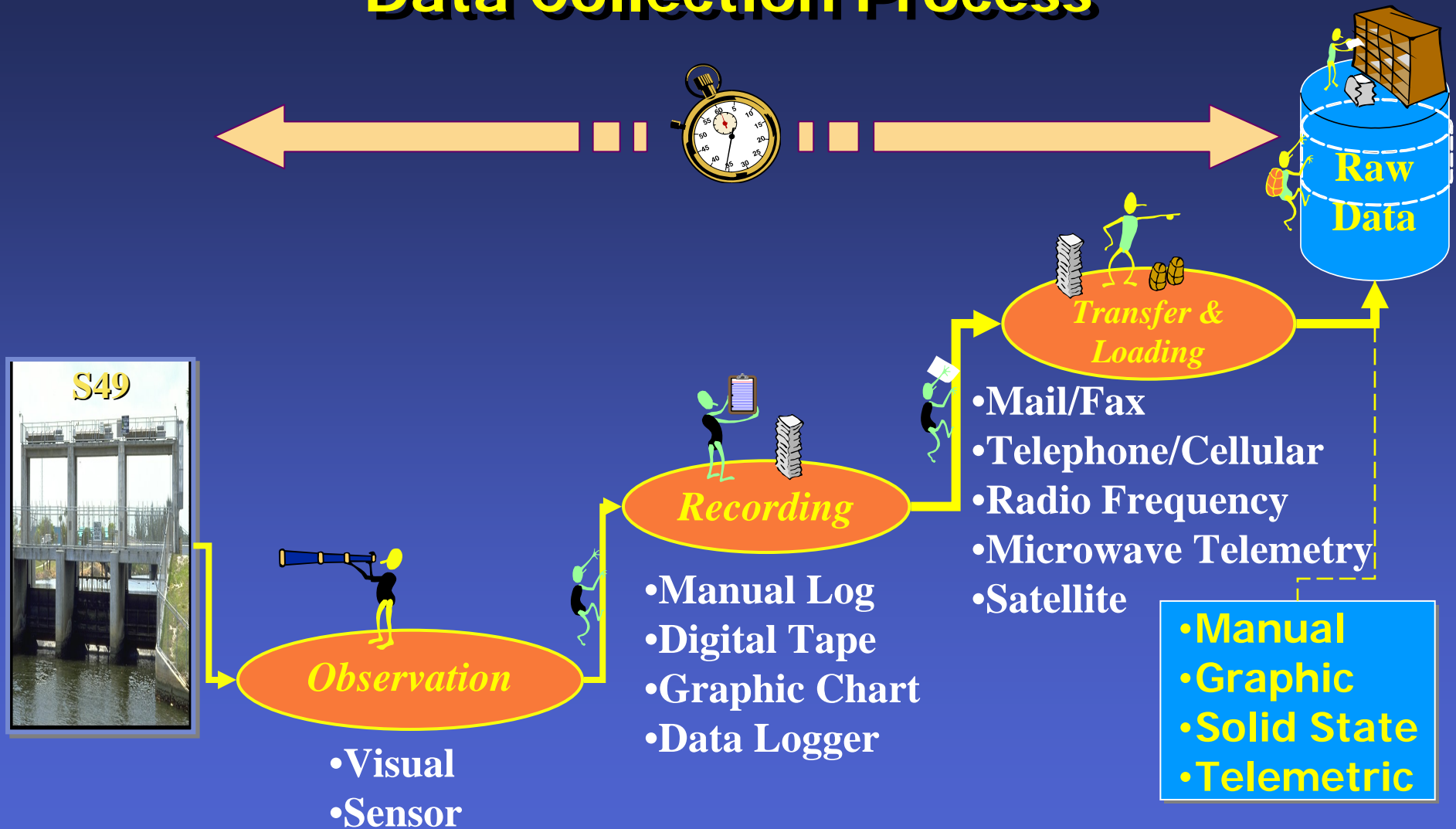


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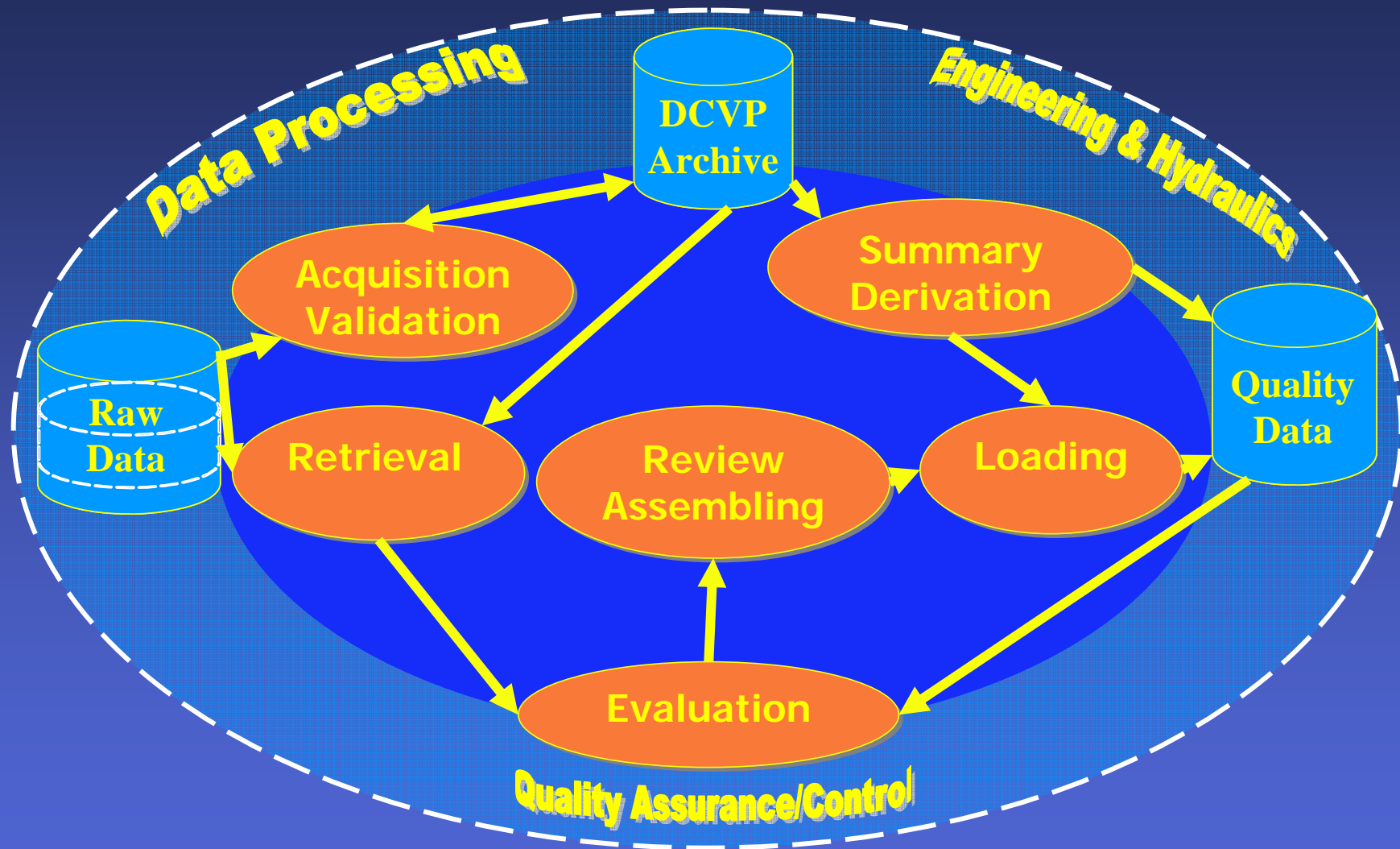
Hydro-Meteorological Data Flow & Processes



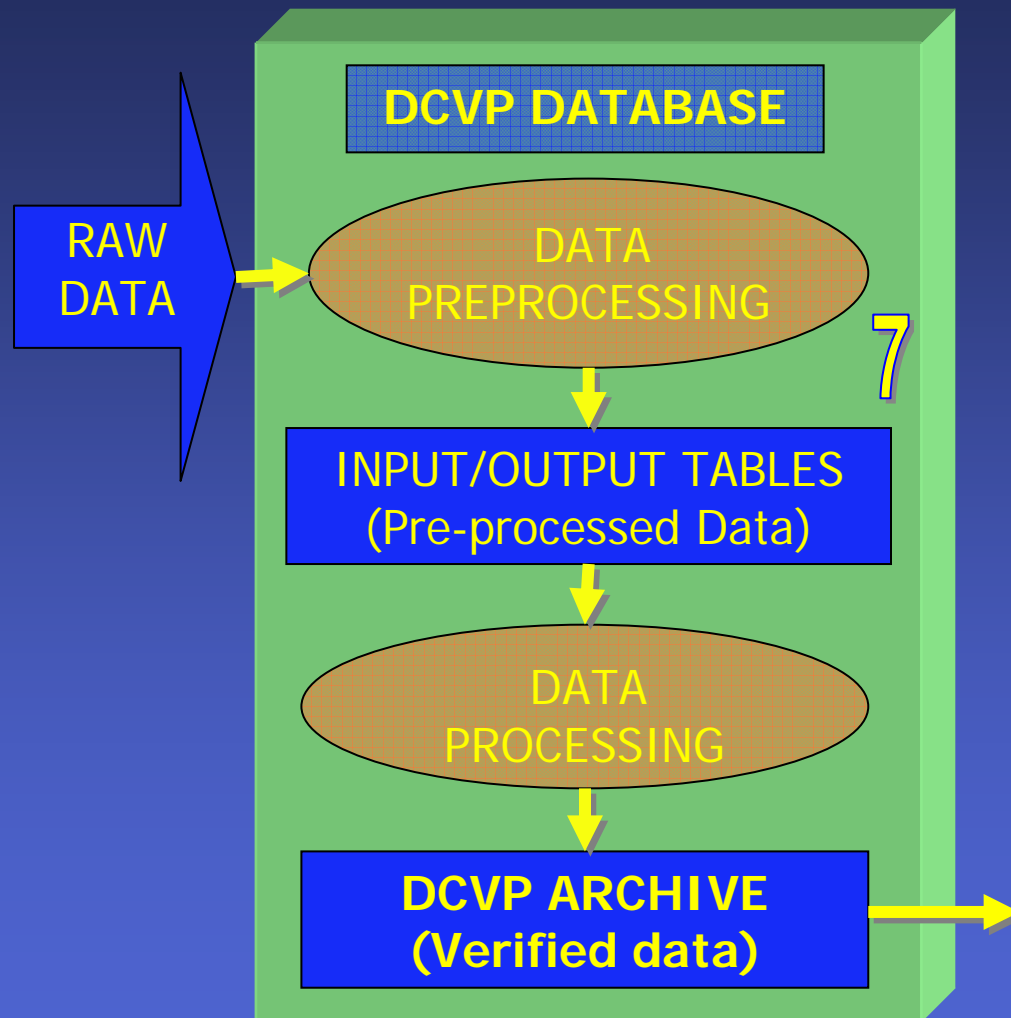
Data Collection Process



Data Management Process



EXISTING DATA FLOW PROCESS & PRESENTATIONS



PRESENTATION 7

*Initial Data Processing and
QA/QC*
Presenter: *Cherry James*

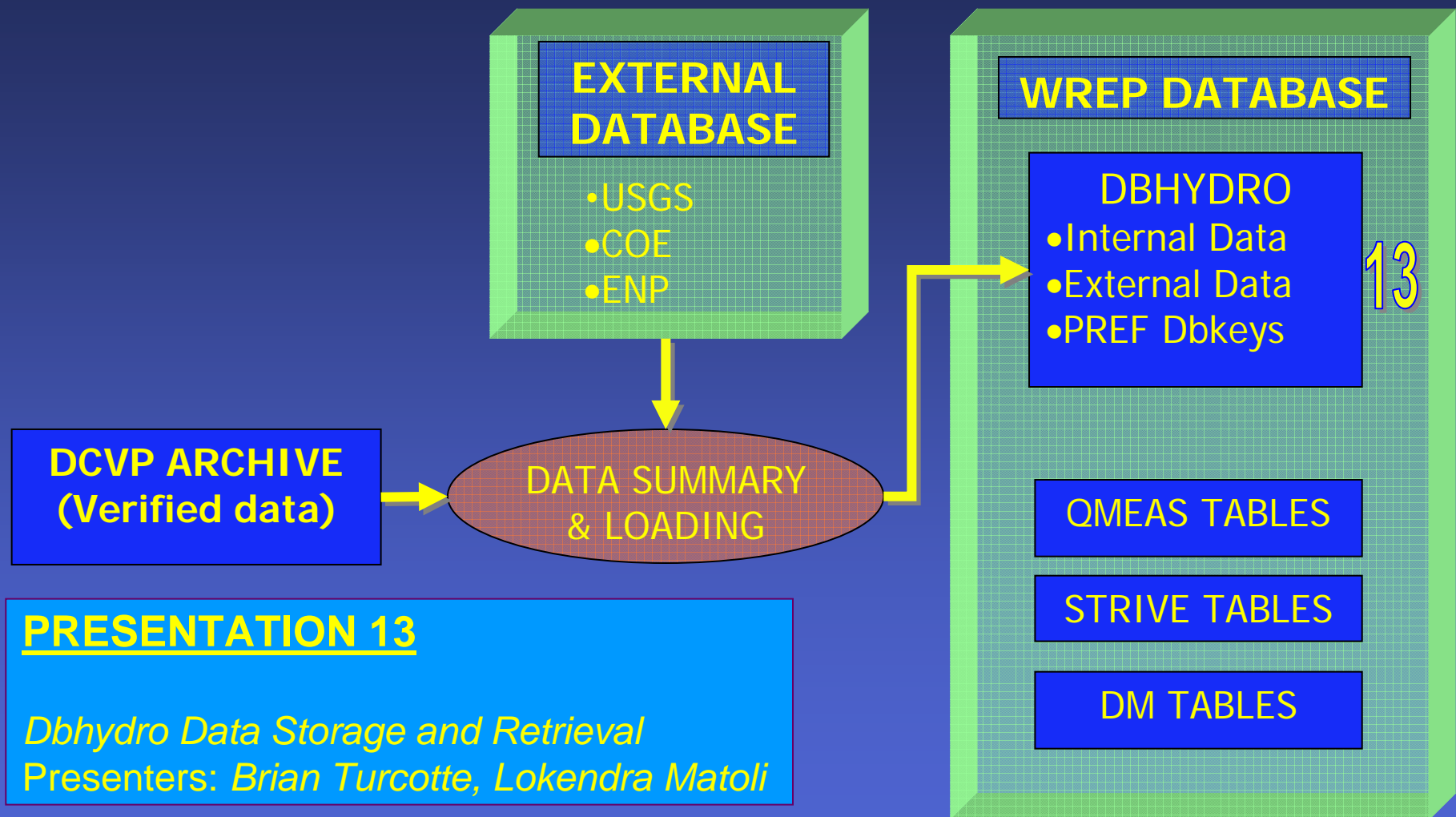
Dynamic Data

- Water Stages (HW, TW)
- Operation Conditions
(Gate opening, Pump speed)

Summary of DCVP And Data Processing

- Verified data are archived in DCVP database
- DCVP stands for Data Collection, Validation and Preprocessing
- DCVP is used for all of the raw data received through the various data collection methods used by the District
- DCVP was developed to handle manually and electronically collected data
- Data processing consists of a set of checks and validation procedures such as
 - Verification of the IDentifiers used to distinguish a data collection location from all others
 - Checks against maximum and minimum allowable values to help in data outliers identification
 - Checks rate of change does not exceed allowable maximum and minimum values

EXISTING DATA FLOW PROCESS & PRESENTATIONS



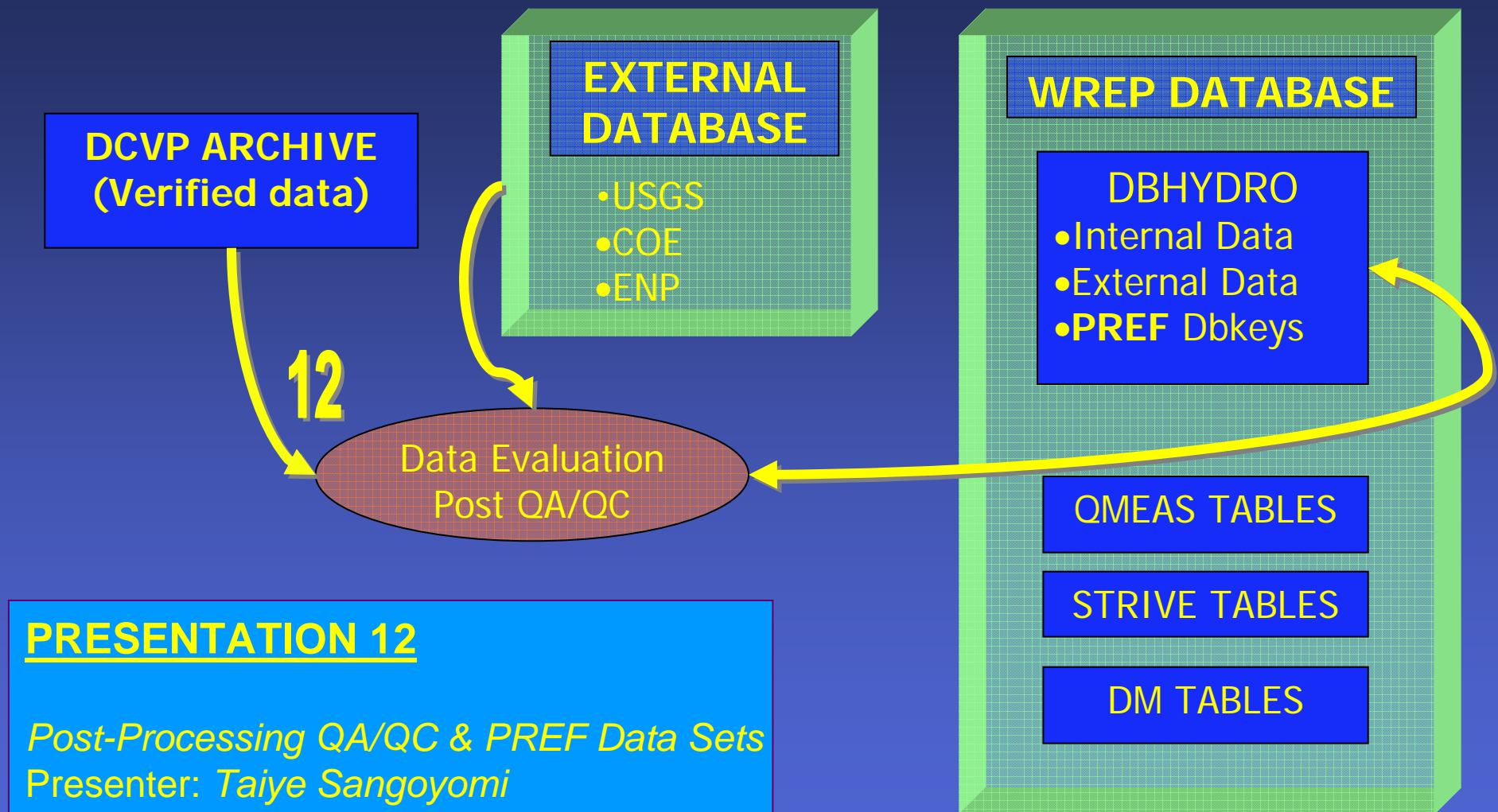
Summary of DBHYDRO Database

- DBHYDRO is a corporate database where users get most of the available data
- Verified data from DCVP archive are summarized and loaded into DBHYDRO database
- Some external data coming from the Corps of Engineers (COE), the USGS and the Everglades National Park (ENP) are also loaded into DBHYDRO
- Over 8,000 monitoring sites in DBHYDRO
- Over 80,000 stations-years of data stored
- About 30 Millions daily values are stored in DBHYDRO

Hydro-Meteorological Data

- Stage (Headwater, Tailwater)
- Operations (Gate Opening, Pump Speed)
- Flow (derived)
- Rainfall
- Temperature (air, water)
- Barometric Pressure
- Radiation (total, net)
- Wind (direction, speed)
- Relative Humidity
- Pan Evaporation
- Potential ET (derived)

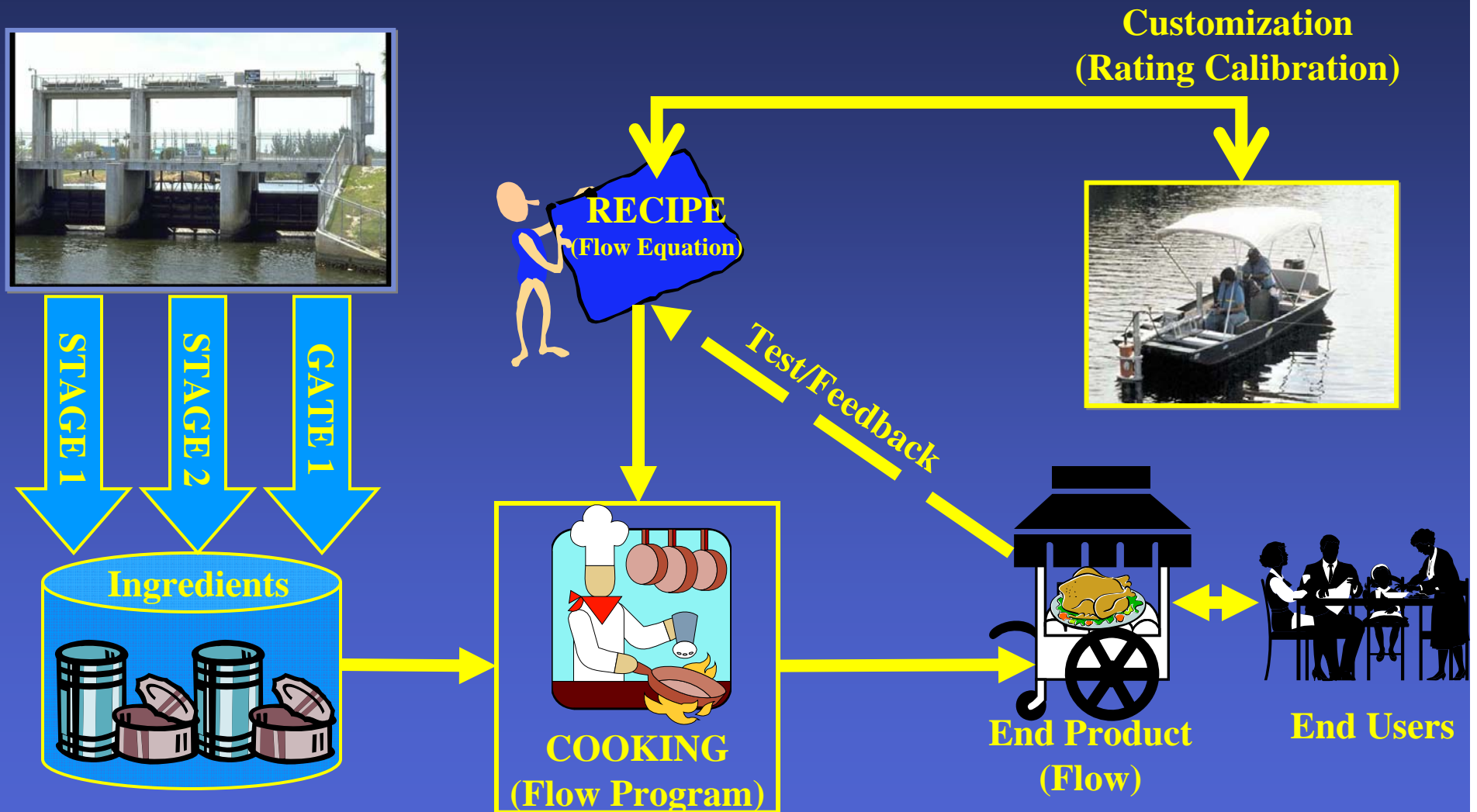
EXISTING DATA FLOW PROCESS & PRESENTATIONS



Summary of Post QA/QC

- Post QA/QC of data is done using all information available (internal and external)
- Post QA/QC process is performed on a subset of data with legal mandates (EAA rulemaking, STAs, ECP ...)
- Post QA/QC data are stored in special dbkeys called Preferred (PREF) dbkeys
- About 145 PREF sites are maintained in DBHYDRO

Flow Data Generation Process



EXISTING DATA FLOW PROCESS & PRESENTATIONS

PRESENTATION 8

*Flow Rating Development & Calibration –
Flow Computation
Presenter: Sashi Nair*

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**DCVP ARCHIVE
(Verified data)**

Dynamic Data

DATA SUMMARY
& LOADING

RATING
DEVELOPMENT

FLOW
COMPUTATION

WREP DATABASE

DBHYDRO

- Internal Data
- External Data
- PREF Dbkeys

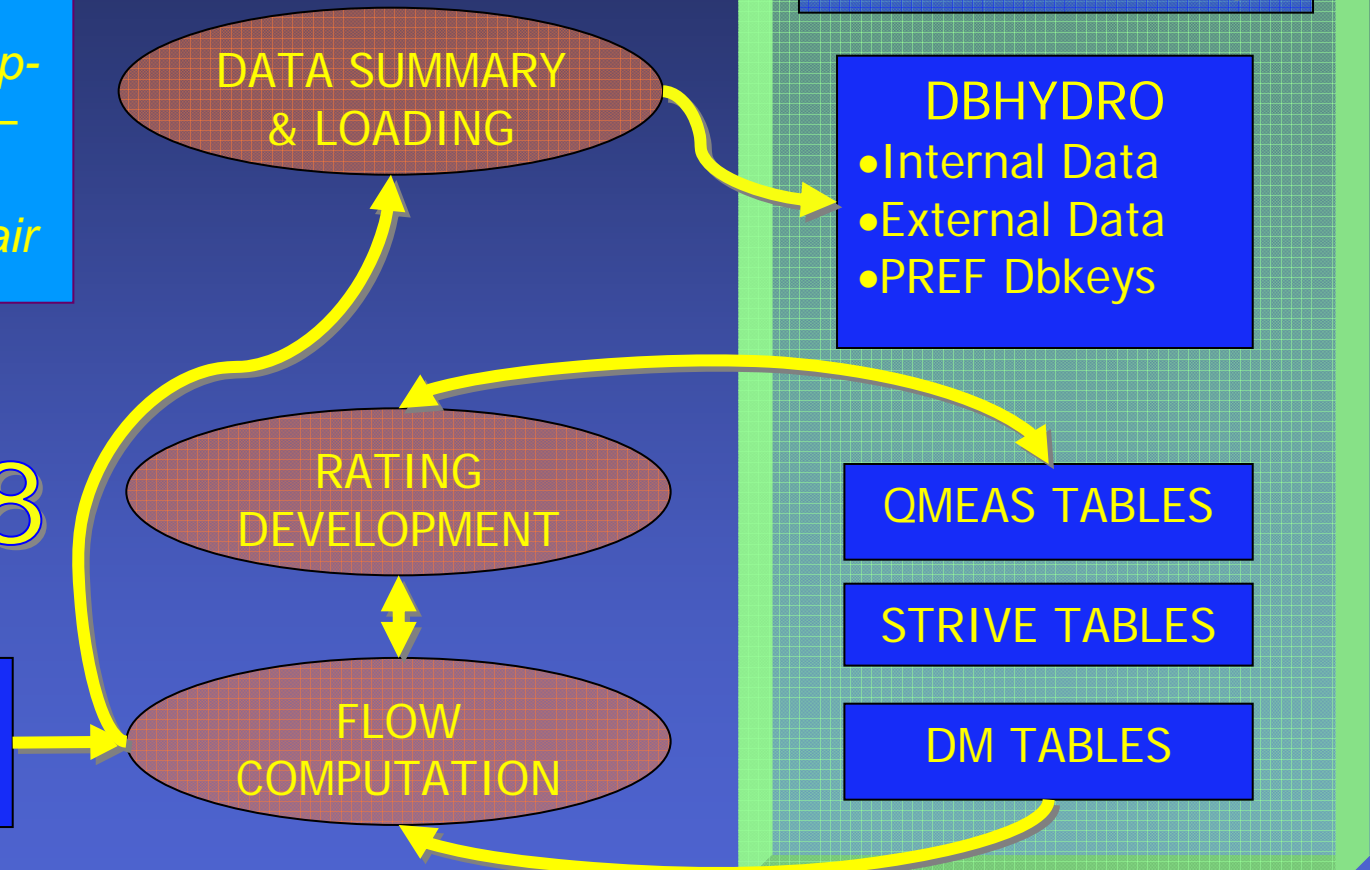
QMEAS TABLES

STRIVE TABLES

DM TABLES

Static Data

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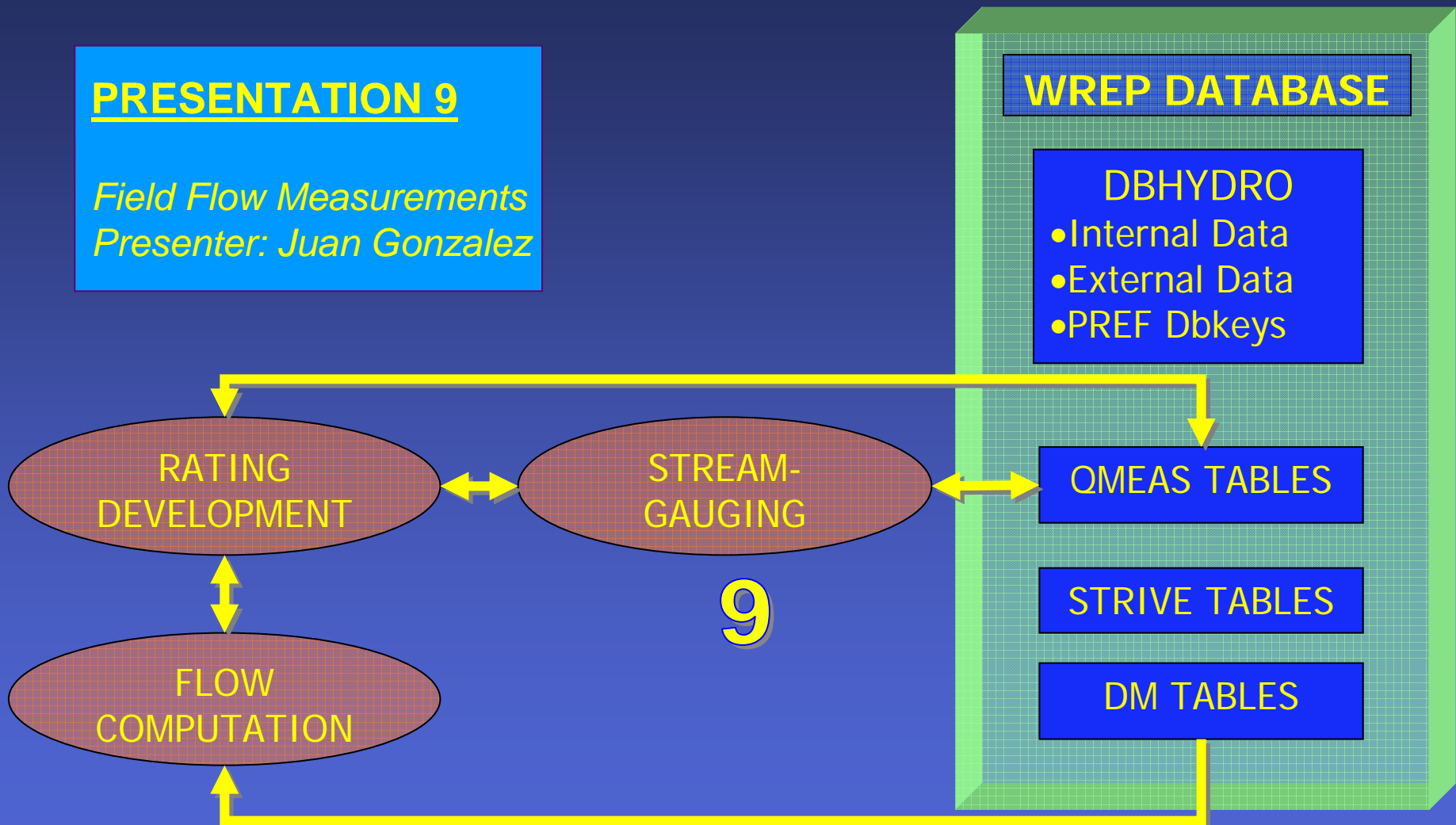
Summary of Flow Computation Flow Rating And Calibration

- Flow computation is done at over 400 District structures
- Flow computation is performed by the FLOW program based on the type of structure (Spillway, Culvert, Pump, Weir) and flow conditions
- Ratings and calibrations are used to improve and verify the flow computation

EXISTING DATA FLOW PROCESS & PRESENTATIONS

PRESENTATION 9

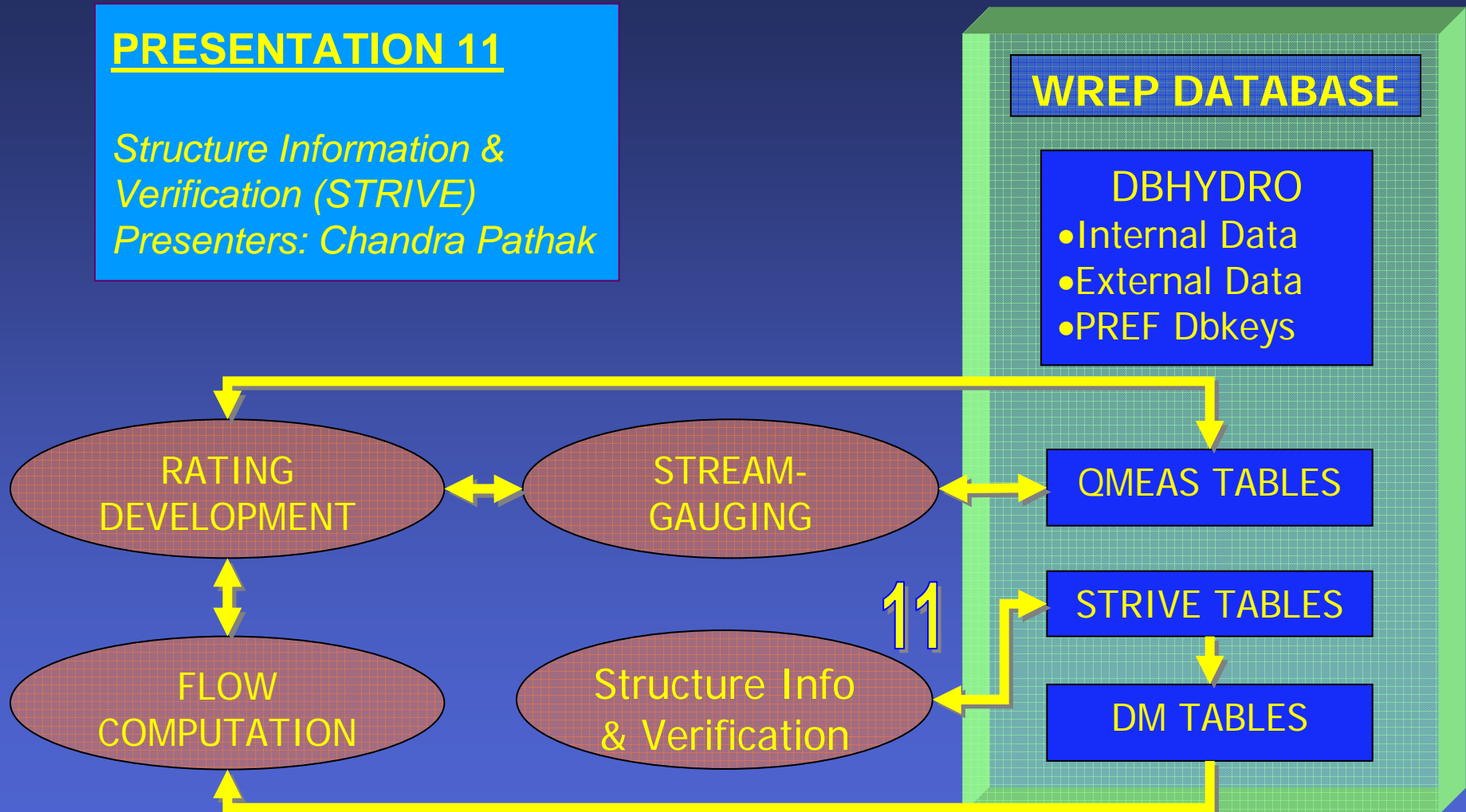
*Field Flow Measurements
Presenter: Juan Gonzalez*



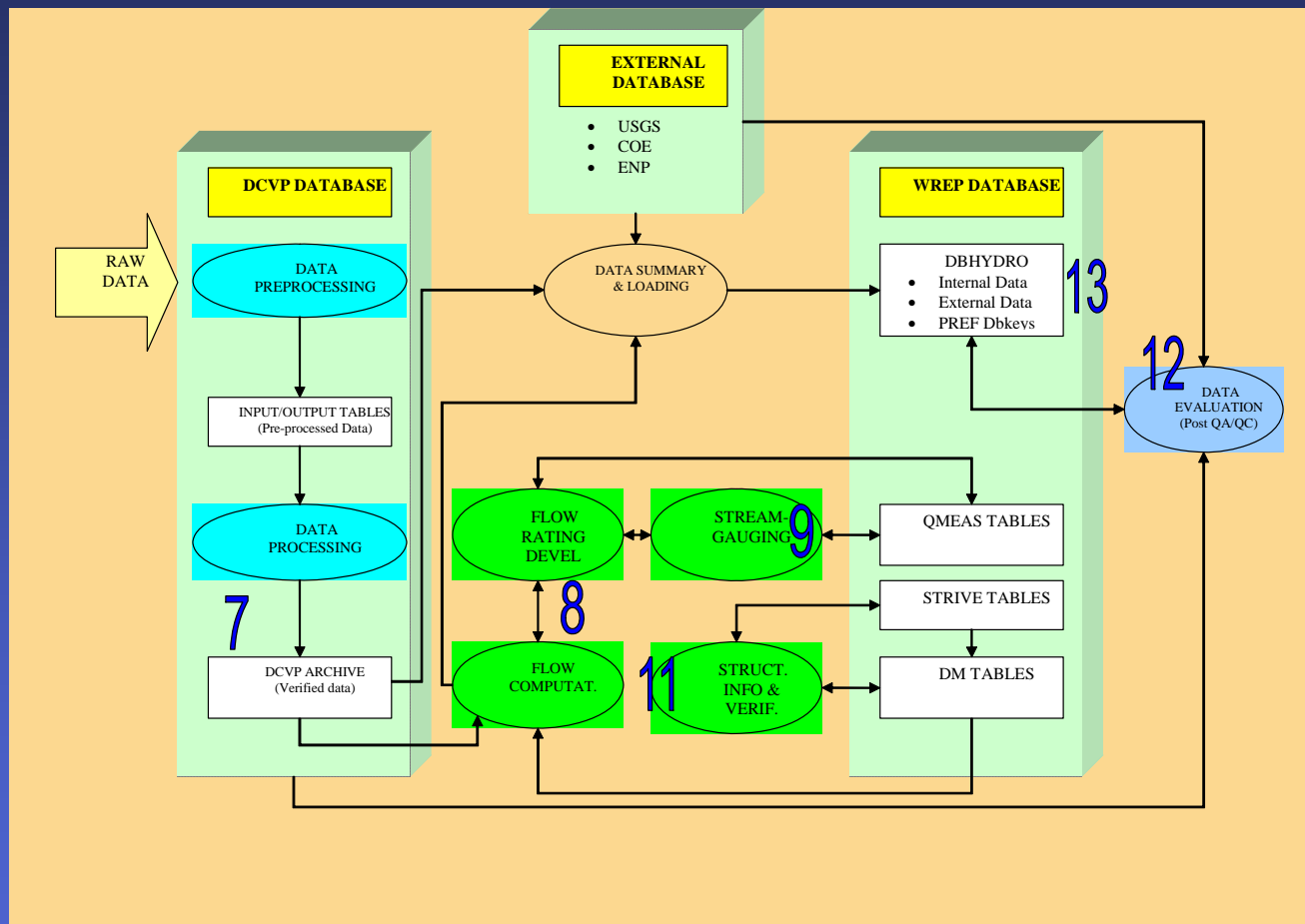
EXISTING DATA FLOW PROCESS & PRESENTATIONS

PRESENTATION 11

*Structure Information &
Verification (STRIVE)
Presenters: Chandra Pathak*



EXISTING DATA FLOW PROCESS & PRESENTATIONS



PRESENTATIONS

- 7:** Initial Data Processing and QA/QC
- 8:** Flow Computation, Rating Development
- 9:** Field Flow Measurements
- 11:** STRIVE
- 12:** Post QA/QC
- 13:** Data Storage and Retrieval

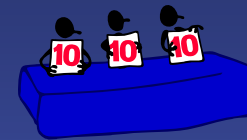
The Challenges

Q UALITY

FROM



TO



T IME

J F M A M J J A



C OST



“Produce Quality data, in a Timely and Cost effective manner”

Questions...

